

TATA & HOWARD

INCORPORATED

November 19, 2007

Marion Board of Selectmen
2 Spring Street
Marion, Massachusetts 02738

Subject: Water & Sewer Rate Study
T&H No. 1977

Dear Members of the Board:

In accordance with our agreement, Tata & Howard is pleased to present this final letter report regarding current and future water and sewer rates for the Marion Department of Public Works. Specifically, the study was undertaken to evaluate the current billing practices, estimate future expenditures and determine a new rate structure that will meet future budgetary requirements. Water and sewer rates were evaluated for a five-year study period through 2013. The results of the study are presented herein.

Future System Improvements

Water and sewer system improvements are essential to all public water and sewer systems. New water and sewer mains, water supply sources, and water storage facilities allow the Department to provide adequate water and sewer service to the increasing number of consumers. In addition, upgrades to the existing facilities are required to maintain reliability and to meet the stringent regulations set forth by state and federal authorities. In order to finance the proposed improvements, revenue from rates need to reflect future costs.

Water Distribution Improvements

A Water Distribution Plan was completed by CDM in April 2005. The purpose of the study was to prepare demand projections through the design year 2025 and assess potential infrastructure improvements necessary to meet the needs of the residential and business customers. As a result of the analysis, distribution improvements were recommended to address the deficiencies in the system and the recommendations were prioritized for future implementation. The recommended future water improvements and estimated costs of each improvement planned for the next five years are included in Table No. 1.

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Table No. 1
Water System Capital Improvements Project*
Marion Department of Public Works

Project	From	To	Estimated Cost
2008			
Front Street	End of FY07	Ryders Lane	\$267,600
Ryders Lane	Front Street	Mill Street	\$289,900
Front Street	Wareham Road	Ryders Lane	\$356,800
2009			
Spring Street	Main Street	Cottage Street	\$86,400
Highland Avenue	Barnabas Road	Benson Brook Road	\$245,300
Hiller Street	Front Street	Main Street	\$144,000
South Street	Pleasant Street	Water Street	\$316,800
2010			
Pleasant Street	Main Street	Converse Road	\$569,750
Converse Road	Pleasant Street south as funds allow		\$271,310
2011			
Converse Road	South from FY10 as funds allow		\$874,710
2012			
Converse Road	South from FY11 as funds allow		\$909,700
2013			
Planting Island Road	Point Road	End of Public Road	\$446,710
Point Road	Point Road Tank	Delano Road	\$457,790

* Phase 1 Improvements were funded in FY07 and are included in the existing debt service.

* From CDM Water Distribution Plan, April 2005.

Water Supply Improvements

In addition to distribution system improvements, the DPW is working to locate and construct a new water supply source to meet projected water needs. Test well exploration, is currently underway and is included a line item in the projected water budget. The Mattapoissett River Valley Water District Treatment Facility is currently under construction. Marion will continue to contribute its share of the facility construction and operation and maintenance expenses under the Mattapoissett River Valley budget item.

Sewer Collection Improvements

An Infiltration/Inflow Remediation Program – Phase II SSES Report was completed by CDM in October 2006 and revised in February 2007. The report outlined recommended sewer system improvements and a schedule for implementation. Table No. 2 includes the sewer improvements and the estimated costs of each improvement planned for the next five years. These projects are required to maintain compliance with the Massachusetts Department of Environmental Protection (DEP) permit for the wastewater treatment facility.

General Operation and Maintenance

General operation and maintenance practices include regularly scheduled maintenance programs such as replacement of water meters, valves, hydrants and water mains. The Department will continue to replace broken water meters throughout the system under the existing line item in the budget.

Current Water Rates and Revenue

As stated in the American Water Works Association Manual for water supply practices, a water supplier must provide adequate water service to its customers as well as receive sufficient revenue to provide proper operation and maintenance, development of the system and maintenance of the supplier's financial integrity. This includes covering all cash needs, debt obligations and basic expenses required for a water system. The DEP also requires that the Town establish a rate structure to maintain the prescribed service standards and an operations and maintenance program.

The Marion DPW currently charges residential and commercial water and sewer consumers on a semi-annual basis a base charge dependent on water meter size plus a usage fee dependent on the volume of water consumed. The usage fee is an ascending block rate structure to encourage conservation among water users, as required by DEP. Sewer fees are based on water usage in a similar block structure. Table No. 3 lists the base charge for each meter size. Table No. 4 includes the rate per usage block for water and sewer usage.

Table No. 2
Sewer System Capital Improvements Project*
Marion Department of Public Works

Project	Estimated Cost
2008	
Village Loop Structural Repairs	\$120,000
2009	
Village Loop Structural Repairs	\$140,000
2010	
Downtown Smoke Testing Field Program	\$30,000
Implementation in Test Basin Flow Monitoring	\$23,000
House-to-House Inspections and Follow-up in Test Basin	\$60,000
2011	
Downtown Smoke Testing Follow-up Testing	\$20,000
Implementation in Test Basin Main Line and Service Remediation	\$58,000
Implementation in Test Basin Manhole Remediation	\$4,000
Implementation in Test Basin Flow Monitoring	\$22,000
2012	
Implementation in Test Basin Main Line and Service Remediation	\$230,000
Implementation in Test Basin Manhole Remediation	\$18,000
Implementation in Test Basin Flow Monitoring	\$22,000
2013	
Implementation in Test Basin Flow Monitoring	\$22,500

* From CDM I/I Remediation Program: Downtown Village Area SSES", October 2006

Table No. 3
Existing Base Charge per Billing Cycle
Marion Department of Public Works

Meter Size	Water Charge	Sewer Charge
5/8" x 3/4"	\$76.50	\$204.00
3/4"	\$102.00	\$306.00
1"	\$170.00	\$510.00
1-1/2"	\$340.00	\$1,020.00
2"	\$544.00	\$1,632.00
3"	\$1,083.75	\$3,264.00
4"	\$1,695.75	\$5,100.00

Table No. 4
Existing Usage Fees
Marion Department of Public Works

Water Usage	Water Rate per 1,000 cf	Sewer Rate per 1,000 cf
Less than 2,500 CF	\$38.00	\$49.40
2,501 - 5,000 CF	\$86.00	\$111.80
Greater than 5,000	\$124.00	\$161.20

In addition, the DPW charges water service connection fees based on the water meter size. The water service connection fees are included in Table No. 5. The new sewer connection fee is \$10,000 plus a \$220 per bedroom Inflow & Infiltration Fee. The Inflow & Infiltration Fee is also applied to additions to existing dwellings on the sewer system.

Table No. 5
Water Service Connection Fees
Marion Department of Public Works

Service Size	Total Cost
1" Tap & Meter	\$250
1" Service	\$800
1-1/2" Service	\$900
2" Service	\$1,100
Rochester or Private Service	\$500

Projected Population and Consumption

In general, future water demands are estimated based on population trends. A system's population has a direct correlation with water consumption. As the population continues to increase, the water system demands will increase. Based on information presented in the 2005 Water Supply Plan, the estimated projected buildout population for Marion is approximately 8,000 residents. In addition, as part of the Mater Plan update, the Marion Planning Department completed a Demographic Study in 2006 based on US Census data. This study projects a population of 6,800 in 2011. This equates to a population growth of approximately 0.7 percent per year.

Because of recent changes to the water rates a decrease in water demand is expected. The water and sewer rates were significantly increased in April 2007. Customers were charged the new rates for both billing cycles in 2007. It is expected that, after paying the new rates in 2007, customers will be more likely to actively conserve water. Therefore, the results of conservation measures will be seen in the 2008 demands. According to the United States Environmental Protection Agency (USEPA) Water Conservation Plan Guidelines, a water system can expect a two to four percent decrease in residential demand and a five to eight percent decrease in nonresidential demand following a ten percent increase in rates. Because Marion is primarily residential, but does have a few major commercial customers, an expected decrease in demands of five percent was assumed for 2008.

Because 2006 is the most recent year with all water consumption data available, this decrease was applied to all accounts to estimate the 2008 demand. The overall demand for existing customers was held constant through the remainder of the study period. Based on DPW Annual Reports, an average of 30 new water services and nine new sewer services were added annually over the past five years. It is expected that this trend will

continue over the study period. According to the 2000 US Census data, the average household size in Marion is 2.51 people per household. Using the Department of Environmental Protection usage goal of 80 gallons per person per day, the estimated water usage of each new service connection is approximately 9,800 cubic feet (CF) per year. Future revenue projections are based on this additional consumption for 30 new water and nine new sewer customers per year.

Expended and Projected Budgets

Information regarding the Marion DPW's expended water and sewer budgets was obtained from the Department's Annual Reports. A summary of both the water and sewer budgets is presented in Table No. 6. A more detailed breakdown of the water and sewer expenses and non-rate revenues is included Table No. 7 and Table No. 8, respectively. The budget includes direct costs, indirect costs and existing debt service. Direct costs include expenses for the daily operation of the Department such as staff, services and supplies. Indirect costs are financed by the Department and include benefits such as health insurance, pensions, shared employee benefits and general insurance for the department. The existing debt service includes annual payments for completed water and sewer system improvements projects.

A summary of the projected water and sewer budgets for the study period, fiscal years 2009 through 2013, is included in Table No. 9. Detailed projected expenses for water and sewer are shown on Table No. 10 and Table No. 11, respectively. The following is a list of assumptions made for the determination of the projected budgets:

- Due to varying expenditures for supplies and services, baseline costs for each line item were obtained by projecting year 2008 anticipated costs.
- The average inflation rate for 2007 of 3.2 percent per year was applied to estimate budget increases due to inflation for direct costs with the following exceptions:
 - An increase of three percent per year was applied to salaries, wages, and overtime to account for future contracts and staffing needs.
 - An increase of 10 percent per year was applied to uniform allowances.
 - Due to the increasing cost of fuel, an increase of 15 percent per year was applied to electricity, propane, diesel and gasoline.
- The DPW does not expect expenses in the following line items to increase over the next five years: vacation/sick buyback, longevity, and water testing.

Table No. 6
Water & Sewer Department Expended Budget Summary
Marion, Massachusetts

Year	Water Budget				Sewer Budget			
	2005	2006	2007	2008*	2005	2006	2007	2008*
Salaries & Wages	\$168,886	\$181,748	\$182,250	\$190,659	\$154,589	\$214,253	\$208,540	\$234,209
Services & Supplies	\$301,184	\$286,185	\$286,617	\$316,365	\$133,641	\$262,218	\$269,945	\$254,825
Other Charges & Expenses	\$0	\$75,000	\$147,566	\$293,101				
Indirect Costs	\$124,016	\$138,527	\$128,256	\$151,226	\$108,935	\$138,003	\$143,022	\$157,357
Debt Service	\$14,472	\$83,000	\$385,344	\$487,428	\$894,075	\$1,018,792	\$1,385,604	\$1,445,266
TOTAL EXPENSES	\$608,558	\$764,460	\$1,130,033	\$1,438,779	\$1,291,241	\$1,633,266	\$2,007,110	\$2,091,657
Non-Rate Revenue	\$0	\$109,710	\$104,897	\$0	\$0	\$78,846	\$592,462	\$267,372
TOTAL BUDGET	\$608,558	\$654,750	\$1,025,136	\$1,438,779	\$1,291,241	\$1,554,420	\$1,414,648	\$1,824,285

Table No. 7
Water Department Expended Budget
Marion, Massachusetts

Year	2005	2006	2007	2008*
<u>Salaries & Wages</u>				
Administrative Salary	\$23,358	\$24,584	\$24,827	\$25,588
Fulltime Wages	\$115,571	\$114,103	\$121,552	\$127,442
Vacation/Sick Buyback		\$780	\$854	\$2,375
Backflow Program	\$7,550	\$7,338	\$254	\$9,500
Overtime	\$18,940	\$30,993	\$28,631	\$20,870
Longevity	\$467	\$0	\$467	\$467
Education/Training		\$1,207	\$1,100	\$1,500
Uniform Allowance	\$3,000	\$2,742	\$4,564	\$2,917
Subtotal	\$168,886	\$181,748	\$182,250	\$190,659
<u>Services & Supplies</u>				
Advertising	\$910	\$0	\$20	\$1,100
Contract Services	\$2,325	\$4,238	\$13,541	\$11,000
Repair Motor Vehicles	\$3,311	\$536	\$666	\$1,000
Telephone	\$5,978	\$10,192	\$8,888	\$9,854
Electric	\$77,553	\$73,184	\$79,592	\$85,600
Buzzards Bay Water Testing	\$575	\$1,249	\$920	\$2,500
Engineering	\$14,847	\$21,409	\$15,090	\$15,000
Testing	\$7,708	\$7,635	\$7,911	\$23,000
Supplies	\$21,981	\$16,873	\$14,746	\$12,500
Property Maintenance	\$4,159	\$2,772	\$2,629	\$2,500
Vehicle Supplies		\$1,134	\$7,658	\$2,000
Meter Replacement	\$20,171	\$16,555	\$22,485	\$20,000
Chemicals	\$43,815	\$58,196	\$39,883	\$64,750
Fuel/Propane	\$8,853	\$18,883	\$16,004	\$11,000
Diesel	\$27,094	\$966	\$1,439	\$325
Gasoline	\$0	\$7,232	\$10,216	\$6,800
Water Assessment	\$9,172	\$18,534	\$19,481	\$19,481
Travel/Meetings	\$0	\$0	\$225	\$250
Licences/Dues	\$1,017	\$2,077	\$1,214	\$750
Water Withdrawal Fees	\$2,327	\$2,082	\$2,071	\$1,955
Pump Repairs	\$49,390	\$22,436	\$21,938	\$25,000
Subtotal	\$301,184	\$286,185	\$286,617	\$316,365

* Budgeted

Table No. 7 (Continued)
Water Department Expended Budget
Marion, Massachusetts

Year	2005	2006	2007	2008*
<u>Other Charges & Expenses</u>				
New Vehicle - Truck			\$30,863	\$35,000
Generator				
Water District Assessment			\$97,500	
Mattapoissett River Valley District		\$75,000		\$208,101
Well Exploration			\$19,204	\$50,000
Subtotal	\$0	\$75,000	\$147,566	\$293,101
<u>Indirect Costs</u>				
Health Insurance (Direct)	\$23,507	\$21,454	\$16,657	\$25,890
Health Insurance (Shared)		\$1,342	\$1,568	\$3,090
Life Insurance (Direct)	\$1,735	\$1,559	\$1,124	\$1,589
Life Insurance (Shared)		\$440	\$454	\$449
FICA Medicare (Direct)	\$1,385	\$1,083	\$558	\$1,184
FICA Medicare (Shared)		\$499	\$512	\$543
Pension (Direct)	\$9,609	\$27,268	\$21,054	\$30,345
Pension (Shared)		\$8,324	\$8,558	\$9,251
Shared Employees	\$55,340	\$41,618	\$42,831	\$46,257
Admin. Service Expenses	\$2,430	\$2,430	\$2,430	\$2,430
Legal		\$2,500	\$2,500	\$2,500
Computers	\$2,848	\$2,848	\$2,848	\$2,848
Town Insurance	\$27,162	\$27,162	\$27,162	\$24,850
Subtotal	\$124,016	\$138,527	\$128,256	\$151,226
Debt Service	\$14,472	\$83,000	\$385,344	\$487,428
TOTAL EXPENSES	\$608,558	\$764,460	\$1,130,033	\$1,438,779
<u>Non-Rate Revenue</u>				
Water Interest		\$5,517	\$4,547	
Water Fees and Demands		\$2,284	\$2,293	
Utility Liens		\$68,114	\$86,448	
Backflow Testing		\$12,052	\$326	
Premium on Bonds		\$21,419	\$11,284	
Unclassified		\$325		
Subtotal	\$0	\$109,710	\$104,897	\$0
TOTAL BUDGET:	\$608,558	\$654,750	\$1,025,136	\$1,438,779

* Budgeted

Table No. 8
Sewer Department Expended Budget
Marion, Massachusetts

Year	2005	2006	2007	2008*
Salaries & Wages				
Administrative Salary	\$23,358	\$24,584	\$24,827	\$25,588
Fulltime Wages	\$110,581	\$163,357	\$157,836	\$180,217
Vacation/Sick Buyback		\$1,691	\$1,635	\$1,342
Overtime	\$17,184	\$19,088	\$17,860	\$21,550
Longevity	\$467	\$467	\$467	\$467
Education/Training		\$1,788	\$620	\$1,500
Uniform Allowance	\$3,000	\$3,278	\$5,295	\$3,545
Subtotal	\$154,589	\$214,253	\$208,540	\$234,209
Services & Supplies				
Advertising	\$210	\$0	\$40	\$250
Contract Services	\$231	\$17,758	\$19,270	\$20,550
Repair Motor Vehicles	\$1,339	\$1,784	\$1,075	\$1,000
Telephone	\$4,551	\$7,405	\$6,181	\$7,200
Electric	\$40,969	\$119,840	\$155,858	\$125,280
Engineering	\$19,369	\$3,001	\$1,886	\$10,000
Testing	\$35,556	\$24,774	\$22,258	\$23,000
Supplies	\$6,978	\$17,009	\$15,305	\$12,500
Property Maintenance	\$4,774	\$461	\$492	\$500
Vehicle Supplies		\$815	\$6,765	\$3,000
Chemicals		\$10,367	\$12,084	\$12,500
Fuel (#2 Heating)	\$4,754	\$44,405	\$27,187	\$24,850
Diesel	\$0	\$644	\$0	\$865
Gasoline	\$6,000	\$1,655	\$0	\$6,480
Travel/Meetings	\$0	\$120	\$225	\$1,000
Licenses/Dues	\$501	\$1,018	\$599	\$850
Pump Repairs	\$8,409	\$11,162	\$720	\$5,000
Subtotal	\$133,641	\$262,218	\$269,945	\$254,825

* Budgeted

Table No. 8 (Continued)
Sewer Department Expended Budget
Marion, Massachusetts

Year	2005	2006	2007	2008*
<u>Indirect Costs</u>				
Health Insurance (Direct)	\$17,175	\$21,232	\$23,331	\$16,335
Health Insurance (Shared)	\$0	\$1,342	\$1,683	\$3,090
Life Insurance (Direct)	\$1,735	\$2,027	\$2,088	\$2,066
Life Insurance (Shared)	\$0	\$440	\$454	\$449
FICA Medicare (Direct)	\$2,265	\$2,425	\$2,477	\$2,656
FICA Medicare (Shared)	\$0	\$499	\$512	\$543
Pension (Direct)	\$9,748	\$38,144	\$39,136	\$41,753
Pension (Shared)	\$0	\$8,324	\$8,558	\$9,251
Shared Employees	\$57,560	\$41,618	\$42,831	\$46,257
Admin. Service Expenses	\$2,430	\$2,430	\$2,430	\$2,430
Legal	\$1,000	\$2,500	\$2,500	\$2,500
Computers	\$1,627	\$1,627	\$1,627	\$1,627
Town Insurance	\$15,395	\$15,395	\$15,395	\$28,400
Subtotal	\$108,935	\$138,003	\$143,022	\$157,357
<u>Debt Service</u>	\$894,075	\$1,018,792	\$1,385,604	\$1,325,266
<u>Improvements</u>				\$120,000
TOTAL EXPENSES	\$1,291,241	\$1,633,266	\$2,007,110	\$2,091,657
<u>Non-Rate Revenue</u>				
Sewer Interest		\$3,641	\$0	
Earnings on Investments		\$5,586	\$0	
Sewer Betterments		\$54,877	\$308,157	\$267,372
Sewer Rate Relief		\$14,742	\$24,555	
Unapportioned Special Assessment		\$0	\$255,430	
Unclassified		\$0	\$4,320	
Subtotal	\$0	\$78,846	\$592,462	\$267,372
TOTAL BUDGET	\$1,291,241	\$1,554,420	\$1,414,648	\$1,824,285

* Budgeted

Table No. 9
Water & Sewer Department Projected Budget Summary
Marion, Massachusetts

Year	Water Budget					Sewer Budget				
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
Salaries & Wages	\$196,326	\$202,020	\$207,908	\$213,997	\$220,296	\$242,951	\$252,070	\$261,657	\$271,744	\$282,367
Services & Supplies	\$336,948	\$359,612	\$385,114	\$413,860	\$446,318	\$281,494	\$311,804	\$346,290	\$385,565	\$430,336
Other Charges & Expenses	\$293,000	\$293,000	\$260,000	\$260,000	\$300,000					
Indirect Costs	\$165,500	\$181,355	\$198,987	\$218,618	\$240,498	\$172,744	\$189,908	\$209,079	\$230,515	\$254,510
Debt Service	\$742,945	\$927,913	\$968,528	\$942,305	\$1,130,312	\$1,294,136	\$1,340,259	\$1,326,938	\$1,190,657	\$1,183,802
TOTAL EXPENSES	\$1,734,718	\$1,963,900	\$2,020,537	\$2,048,779	\$2,337,424	\$1,991,325	\$2,094,042	\$2,143,964	\$2,078,480	\$2,151,015
Non-Rate Revenue	\$0	\$0	\$0	\$0	\$0	\$267,372	\$259,351	\$251,571	\$244,024	\$236,703
TOTAL BUDGET	\$1,734,718	\$1,963,900	\$2,020,537	\$2,048,779	\$2,337,424	\$1,723,952	\$1,834,691	\$1,892,393	\$1,834,457	\$1,914,312

Table No. 10
Water Department Projected Budget
Marion, Massachusetts

Year	2009	2010	2011	2012	2013
<u>Salaries & Wages</u>					
Administrative Salary	\$26,356	\$27,146	\$27,961	\$28,800	\$29,664
Fulltime Wages	\$131,265	\$135,203	\$139,259	\$143,437	\$147,740
Vacation/Sick Buyback	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500
Backflow Program	\$9,500	\$9,500	\$9,500	\$9,500	\$9,500
Overtime	\$21,496	\$22,141	\$22,805	\$23,489	\$24,194
Longevity	\$500	\$500	\$500	\$500	\$500
Education/Training	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
Uniform Allowance	\$3,209	\$3,530	\$3,883	\$4,271	\$4,698
Subtotal	\$196,326	\$202,020	\$207,908	\$213,997	\$220,296
<u>Services & Supplies</u>					
Advertising	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
Contract Services	\$11,352	\$11,715	\$12,090	\$12,477	\$12,876
Repair Motor Vehicles	\$1,032	\$1,065	\$1,099	\$1,134	\$1,171
Telephone	\$10,169	\$10,495	\$10,831	\$11,177	\$11,535
Electric	\$98,440	\$113,206	\$130,187	\$149,715	\$172,172
Buzzards Bay Water Testing	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500
Engineering	\$15,480	\$15,975	\$16,487	\$17,014	\$17,559
Testing	\$23,736	\$24,496	\$25,279	\$26,088	\$26,923
Supplies	\$12,900	\$13,313	\$13,739	\$14,178	\$14,632
Property Maintenance	\$2,580	\$2,663	\$2,748	\$2,836	\$2,926
Vehicle Supplies	\$2,064	\$2,130	\$2,198	\$2,269	\$2,341
Meter Replacement	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
Chemicals	\$66,822	\$68,960	\$71,167	\$73,444	\$75,795
Fuel/Propane	\$12,650	\$14,548	\$16,730	\$19,239	\$22,125
Diesel	\$374	\$430	\$494	\$568	\$654
Gasoline	\$7,820	\$8,993	\$10,342	\$11,893	\$13,677
Water Assessment	\$19,481	\$19,481	\$19,481	\$19,481	\$19,481
Travel/Meetings	\$250	\$250	\$250	\$250	\$250
Licences/Dues	\$780	\$811	\$844	\$877	\$912
Water Withdrawal Fees	\$2,018	\$2,082	\$2,149	\$2,218	\$2,288
Pump Repairs	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Subtotal	\$336,948	\$359,612	\$385,114	\$413,860	\$446,318

Table No. 10 (Continued)
Water Department Projected Budget
Marion, Massachusetts

Year	2009	2010	2011	2012	2013
<u>Other Charges & Expenses</u>					
New Vehicle - Truck	\$35,000				\$40,000
Generator		\$35,000			
Water District Assessment					
Mattapoissett River Valley District	\$208,000	\$208,000	\$210,000	\$210,000	\$210,000
Well Exploration	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
Subtotal	\$293,000	\$293,000	\$260,000	\$260,000	\$300,000
<u>Indirect Costs</u>					
Health Insurance (Direct)	\$28,479	\$31,327	\$34,459	\$37,905	\$41,696
Health Insurance (Shared)	\$3,399	\$3,738	\$4,112	\$4,524	\$4,976
Life Insurance (Direct)	\$1,717	\$1,854	\$2,002	\$2,162	\$2,335
Life Insurance (Shared)	\$485	\$524	\$566	\$611	\$660
FICA Medicare (Direct)	\$1,243	\$1,305	\$1,370	\$1,439	\$1,511
FICA Medicare (Shared)	\$570	\$599	\$628	\$660	\$693
Pension (Direct)	\$34,897	\$40,131	\$46,151	\$53,073	\$61,034
Pension (Shared)	\$10,639	\$12,235	\$14,070	\$16,181	\$18,608
Shared Employees	\$48,570	\$50,999	\$53,549	\$56,226	\$59,037
Admin. Service Expenses	\$2,552	\$2,679	\$2,813	\$2,954	\$3,101
Legal	\$2,625	\$2,756	\$2,894	\$3,039	\$3,191
Computers	\$2,990	\$3,140	\$3,297	\$3,462	\$3,635
Town Insurance	\$27,335	\$30,069	\$33,075	\$36,383	\$40,021
Subtotal	\$165,500	\$181,355	\$198,987	\$218,618	\$240,498
<u>Debt Service</u>					
Existing Debt	\$742,945	\$712,913	\$672,278	\$653,555	\$634,062
Phase 2 Improvements		\$215,000	\$296,250	\$288,750	\$281,250
Phase 3 Improvements					\$215,000
Subtotal	\$742,945	\$927,913	\$968,528	\$942,305	\$1,130,312
TOTAL EXPENSES	\$1,734,718	\$1,963,900	\$2,020,537	\$2,048,779	\$2,337,424
<u>Non-Rate Revenue</u>					
Water Interest	\$0	\$0	\$0	\$0	\$0
Water Fees and Demands	\$0	\$0	\$0	\$0	\$0
Utility Liens	\$0	\$0	\$0	\$0	\$0
Backflow Testing	\$0	\$0	\$0	\$0	\$0
Premium on Bonds	\$0	\$0	\$0	\$0	\$0
Unclassified	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$0	\$0	\$0	\$0
TOTAL BUDGET:	\$1,734,718	\$1,963,900	\$2,020,537	\$2,048,779	\$2,337,424

Table No. 11
Sewer Department Projected Budget
Marion, Massachusetts

Year	2009	2010	2011	2012	2013
<u>Salaries & Wages</u>					
Administrative Salary	\$26,356	\$27,146	\$27,961	\$28,800	\$29,664
Fulltime Wages	\$185,624	\$191,192	\$196,928	\$202,836	\$208,921
Vacation/Sick Buyback	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400
Overtime	\$23,705	\$26,076	\$28,683	\$31,551	\$34,706
Longevity	\$467	\$467	\$467	\$467	\$467
Education/Training	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
Uniform Allowance	\$3,900	\$4,289	\$4,718	\$5,190	\$5,709
Subtotal	\$242,951	\$252,070	\$261,657	\$271,744	\$282,367
<u>Services & Supplies</u>					
Advertising	\$250	\$250	\$250	\$250	\$250
Contract Services	\$21,208	\$21,886	\$22,587	\$23,309	\$24,055
Repair Motor Vehicles	\$1,032	\$1,065	\$1,099	\$1,134	\$1,171
Telephone	\$7,430	\$7,668	\$7,914	\$8,167	\$8,428
Electric	\$144,072	\$165,683	\$190,535	\$219,116	\$251,983
Engineering	\$10,320	\$10,650	\$10,991	\$11,343	\$11,706
Testing	\$23,736	\$24,496	\$25,279	\$26,088	\$26,923
Supplies	\$12,900	\$13,313	\$13,739	\$14,178	\$14,632
Property Maintenance	\$516	\$533	\$550	\$567	\$585
Vehicle Supplies	\$3,096	\$3,195	\$3,297	\$3,403	\$3,512
Chemicals	\$12,900	\$13,313	\$13,739	\$14,178	\$14,632
Fuel (#2 Heating)	\$28,578	\$32,864	\$37,794	\$43,463	\$49,982
Diesel	\$995	\$1,144	\$1,316	\$1,513	\$1,740
Gasoline	\$7,452	\$8,570	\$9,855	\$11,334	\$13,034
Travel/Meetings	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Licenses/Dues	\$850	\$850	\$850	\$850	\$850
Pump Repairs	\$5,160	\$5,325	\$5,496	\$5,671	\$5,853
Subtotal	\$281,494	\$311,804	\$346,290	\$385,565	\$430,336

Table No. 11 (Continued)
Sewer Department Projected Budget
Marion, Massachusetts

Year	2009	2010	2011	2012	2013
<u>Indirect Costs</u>					
Health Insurance (Direct)	\$17,969	\$19,766	\$21,742	\$23,916	\$26,308
Health Insurance (Shared)	\$3,399	\$3,738	\$4,112	\$4,524	\$4,976
Life Insurance (Direct)	\$2,232	\$2,410	\$2,603	\$2,811	\$3,036
Life Insurance (Shared)	\$485	\$524	\$566	\$611	\$660
FICA Medicare (Direct)	\$2,789	\$2,928	\$3,075	\$3,228	\$3,390
FICA Medicare (Shared)	\$570	\$598	\$628	\$660	\$693
Pension (Direct)	\$48,016	\$55,218	\$63,501	\$73,026	\$83,980
Pension (Shared)	\$10,639	\$12,235	\$14,070	\$16,181	\$18,608
Shared Employees	\$48,570	\$50,999	\$53,549	\$56,226	\$59,037
Admin. Service Expenses	\$2,503	\$2,578	\$2,655	\$2,735	\$2,817
Legal	\$2,625	\$2,756	\$2,894	\$3,039	\$3,191
Computers	\$1,708	\$1,794	\$1,883	\$1,978	\$2,077
Town Insurance	\$31,240	\$34,364	\$37,800	\$41,580	\$45,738
Subtotal	\$172,744	\$189,908	\$209,079	\$230,515	\$254,510
<u>Debt Service</u>					
Existing Debt	\$1,265,608	\$1,256,009	\$1,245,121	\$1,110,996	\$1,106,272
Debt Charges	\$28,528	\$27,925	\$26,842	\$26,036	\$25,255
Improvements	\$0	\$56,325	\$54,975	\$53,625	\$52,275
Subtotal	\$1,294,136	\$1,340,259	\$1,326,938	\$1,190,657	\$1,183,802
TOTAL EXPENSES	\$1,991,325	\$2,094,042	\$2,143,964	\$2,078,480	\$2,151,015
<u>Non-Rate Revenue</u>					
Sewer Interest	\$0	\$0	\$0	\$0	\$0
Earnings on Investments	\$0	\$0	\$0	\$0	\$0
Sewer Betterments	\$267,372	\$259,351	\$251,571	\$244,024	\$236,703
Sewer Rate Relief	\$0	\$0	\$0	\$0	\$0
Unapportioned Special Assessment	\$0	\$0	\$0	\$0	\$0
Unclassified	\$0	\$0	\$0	\$0	\$0
Subtotal	\$267,372	\$259,351	\$251,571	\$244,024	\$236,703
TOTAL BUDGET:	\$1,723,952	\$1,834,691	\$1,892,393	\$1,834,457	\$1,914,312

- The DPW has capped several budget items at their current budget allowance. The following costs remain constant through 2013: water backflow program, education/training, advertising, water meter replacement, water assessment, travel/meetings and licenses/dues.
- Non-rate revenue is not constant and was consequently not included in the projected revenue.
- Projected debt service for Phase II and III water improvements and all proposed sewer improvements were provided by the Town Accountant.

Projected Water Revenue based on the Current Water Rates

In order to determine the adequacy of the existing water rates to cover future improvement costs, the existing rates, 2006 water and sewer account and water consumption projections were evaluated to determine the estimated revenue based on projected water consumption. Usage data for the year 2006 including total usage per meter, and total water billed was obtained from the DPW for each water and sewer account. In 2006, there were 2,679 water accounts and 1,594 sewer accounts. Because sewer rates are based on water usage, water usage for each sewer account was obtained from the DPW.

Table No. 12 shows the number of accounts and water usage for each block in the summer and winter. Usage within each block is based on information from fiscal year 2006.

Table No. 12
Water Usage by Block (2006 Fiscal Year Data)
Marion Department of Public Works

Block	Winter		Summer	
	Number of Accounts	Usage (CF)	Number of Accounts	Usage (CF)
Less than 2,500 CF	1,545	1,874,842	953	1,105,061
2,501 – 5,000 CF	848	2,960,567	880	3,261,313
Greater than 5,000 CF	286	2,909,348	846	8,269,808
Totals:	2,679	7,744,757	2,679	12,636,182

An ascending block rate billing system like the one currently in place is recommended. The manual of water supply practices issued by the AWWA states: "a block rate provides a means of recovering costs for general service classes of residential, commercial and industrial users under a single rate schedule by recognizing the differing water use and associated cost characteristics for each class of service." The Water Management Act permit through the Massachusetts DEP for increasing yield of supplies and/or new source development will also require an increasing block rate. In addition, a block rate discourages excessive water use and, therefore, can decrease the demands of the system. As shown in Table No. 12, it can be seen that though there are few users in the third block, that block has greater demand than the first block which includes more than half of the accounts in the winter. The number of users in the third block increases during the summer months, generally due to irrigation systems. The ascending block rate should encourage these high users to conserve water.

As presented in Table No. 13, the total water revenue needed was determined by taking the projected budget and proposed system improvement costs for fiscal years 2008 through 2013 and subtracting the assumed revenue if water rates remained constant. Retained earnings are applied to offset budget costs in subsequent years. It can be seen in Table No. 13 that the earnings generated using the current rates meet Water Department expenses through 2012. There is a potential deficit in 2013.

As presented in Table No. 14, the total sewer revenue needed was determined by taking the projected budget and proposed system improvement costs for fiscal years 2008 through 2013 and subtracting the assumed revenue if sewer rates remained constant. It can be seen in Table No. 14 that the earnings generated using the current rates meet the Sewer Department expenses through 2013.

Table No. 13
Projected Water Department Revenue with Existing Rates
Marion, Massachusetts

Year	2008	2009	2010	2011	2012	2013
Rate per Block (\$/1,000 CF)						
Less than 2,500 CF	\$38.00	\$38.00	\$38.00	\$38.00	\$38.00	\$38.00
2,501 - 5,000 CF	\$86.00	\$86.00	\$86.00	\$86.00	\$86.00	\$86.00
Greater than 5,000 CF	\$124.00	\$124.00	\$124.00	\$124.00	\$124.00	\$124.00
New User Fee	\$800	\$800	\$800	\$800	\$800	\$800
Estimated New Users	30	30	30	30	30	30
Estimated New User Demand (CF/year)	9,800	9,800	9,800	9,800	9,800	9,800
New User Fees	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000
New User Base and User Charges	\$17,529	\$17,529	\$17,529	\$17,529	\$17,529	\$17,529
Existing Customer Base Charges	\$512,006	\$514,301	\$516,596	\$518,891	\$521,186	\$523,481
Existing Customer Usage Charges	\$1,394,677	\$1,409,911	\$1,425,145	\$1,440,379	\$1,455,613	\$1,470,847
Total Billed	\$1,948,212	\$1,965,741	\$1,983,270	\$2,000,799	\$2,018,328	\$2,035,857
Total Collections (93%)	\$1,811,837	\$1,828,139	\$1,844,441	\$1,860,743	\$1,877,045	\$1,893,347
Total Needed Revenue	\$1,438,779	\$1,734,718	\$1,963,900	\$2,020,537	\$2,048,779	\$2,337,424
Retained Earnings	\$249,093	\$496,000	\$622,151	\$589,421	\$502,692	\$429,628
Total Needed Revenue with Retained Earnings	\$1,189,686	\$1,238,718	\$1,341,749	\$1,431,115	\$1,546,087	\$1,907,796
Surplus/Deficit	\$622,151	\$589,421	\$502,692	\$429,628	\$330,958	-\$14,449

Table No. 14
Projected Sewer Department Revenue with Existing Rates
Marion, Massachusetts

Year	2008	2009	2010	2011	2012	2013
Rate per Block (\$/1,000 CF)						
Less than 2,500 CF	\$49.40	\$49.40	\$49.40	\$49.40	\$49.40	\$49.40
2,501 - 5,000 CF	\$111.80	\$111.80	\$111.80	\$111.80	\$111.80	\$111.80
Greater than 5,000 CF	\$161.20	\$161.20	\$161.20	\$161.20	\$161.20	\$161.20
New User Fee	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Estimated New Users	9	9	9	9	9	9
Estimated New User Demand (CF/Year)	9,800	9,800	9,800	9,800	9,800	9,800
New User Fees	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000
New User Base and User Charges	\$7,777	\$7,777	\$7,777	\$7,777	\$7,777	\$7,777
Existing Customer Base Charges	\$814,368	\$816,204	\$818,040	\$819,876	\$821,712	\$823,548
Existing Customer Usage Charges	\$1,122,657	\$1,130,435	\$1,138,212	\$1,145,989	\$1,153,766	\$1,161,544
Total Billed	\$2,034,803	\$2,044,416	\$2,054,029	\$2,063,642	\$2,073,256	\$2,082,869
Total Collections (93%)	\$1,892,366	\$1,901,307	\$1,910,247	\$1,919,187	\$1,928,128	\$1,937,068
Total Needed Revenue	\$1,824,285	\$1,723,952	\$1,834,691	\$1,892,393	\$1,834,457	\$1,914,312
Retained Earnings	\$72,317	\$106,000	\$140,398	\$283,354	\$215,954	\$310,149
Total Needed Revenue with Retained Earnings	\$1,751,968	\$1,617,952	\$1,694,293	\$1,609,039	\$1,618,502	\$1,604,163
Surplus/Deficit	\$140,398	\$283,354	\$215,954	\$310,149	\$309,625	\$332,905

Municipal Billing

Municipal billing practices were reviewed to evaluate the potential affect on water and sewer rates if Marion municipal accounts were billed. Based on DPW records, if municipal water and sewer accounts were billed, water department revenue would increase approximately \$37,000, while sewer department revenue would increase approximately \$70,000. This increase is not significant enough to reduce rates for customers, but will provide increased revenues to the enterprise accounts and more accurate cost accounting for all departments. Therefore, it is recommended that the DPW work with the Town departments to incorporate water and sewer billing for all municipal buildings.

Historically, Rochester municipal buildings have not been charged for water usage. This practice is currently being reviewed in accordance with the Water Supply Agreement between Rochester and Marion. Sewer service is not provided to Rochester municipal buildings. It is estimated that the annual cost of municipal consumption in Rochester is approximately \$12,000.

Irrigation Metering

Currently, the DPW does not allow separate water meters for irrigation systems. As requested, the affects of allowing irrigation meters on water and sewer revenues was reviewed. If irrigation meters were allowed, DEP conservation standards would require that irrigation usage be billed at a rate higher than the existing highest block rate. Based on DPW estimates, approximately 1,165,000 CF of water is used for irrigation each year. At a rate of 10 percent higher than the highest water block rate, or \$136 per 1,000 CF, this would create an increase in water revenue of approximately \$158,000 per year. Irrigation accounts would be charged an additional meter base charge plus consumption at the higher rate. This rate is higher than the two lowest sewer rates. Therefore consumers will pay more under the separate irrigation billing. Because the irrigation accounts would be separate from household accounts, sewer charges would not be applied to irrigation accounts. This would result in a decrease in sewer revenues, potentially resulting in higher sewer rates for all customers. Sewer revenues would decrease by approximately \$58,000 per year. Implementation of separate irrigation metering will increase consumer costs. Therefore, it is not recommended that the DPW implement separate irrigation accounts for water customers at this time.

The Affects of Weather

When reviewing water and sewer rates, the affects of weather should be considered. In wet year, water use can be significantly reduced, thereby, reducing demand. For example, in 2005, a dry year, 22,258,000 CF of water was billed, while in 2006, a wet year, 20,586,000 CF of water was billed. The reduction of water usage resulted in approximately \$65,000 of lost water revenue and approximately \$80,000 of lost sewer revenue. The rate structure must provide for retained earnings to supplement the budget during wet periods.

Conclusions and Recommendations

The current rate structure is adequate to support the operation and maintenance and capital budgets through 2013. Revenues are conservative estimates and budgets should be monitored annually. Water usage will be affected by the 2007 rate increase, water conservation measures and the weather. In addition, sewer infiltration/inflow improvements will decrease flow to wastewater plant, thereby reducing pumping and treatment costs. Due to these factors, five year estimates should also be updated annually to re-affirm the appropriateness of the rate structures.

The following is a summary of recommended modifications to the current billing rate structure in order to finance the proposed system improvements and maintain financial stability through fiscal year 2013.

- The existing rate structure will provide sufficient earnings to meet water and sewer budget needs. Therefore, it is recommended that the DPW implement the existing rate schedules for water and sewer through 2013.
- The potential revenue for Marion municipal buildings would have a negligible impact on user rates, but will provide increased revenue and more accurate cost accounting for Town budgets. Therefore, it is recommended that the DPW work with the Town departments to incorporate water and sewer billings for all municipal buildings.
- Review Water Supply Agreement with Rochester for potential implementation of billing of municipal accounts and to transfer billing duties to the Town of Rochester.
- Due to DEP standards, separate irrigation accounts would increase costs to consumers and potentially increase sewer rates. Separate irrigation meters are not recommended at this time.
- It is recommended that the DPW maintain retained earnings in anticipation of variable revenue due to weather and conservation measures.

We appreciate the opportunity to assist the Board of Selectmen on this important matter. At this time, we wish to express our appreciation to the Board, the Marion Water Committee and the Department of Public Works for their participation in this study and for their help in collecting information and data. In particular, we wish to extend special thanks to Mr. Rob Zora, DPW Superintendent, Ms. Rebecca Carvalho, Ms. Judy Mooney and yourself for their invaluable contributions to this letter report. This letter report was prepared by Ms. Laurie Cormier, Assistant Project Engineer and the undersigned served as Project Manager. If you have any questions regarding this letter report, please do not hesitate to contact our office.

Sincerely,

TATA & HOWARD, INC.



Patrick S. O'Neale, P.E.
Vice President

cc: Mr. Paul Dawson, Town Administrator
Mr. Robert Zora, DPW Superintendent
Marion Water Committee